



CORRESPONDENCE

Escherichia coli endocarditis of native aortic valve and mitral valve



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Infective endocarditis (IE) is a lethal disease; Gram-negative organisms are rare causes of IE.^{1,2} The most common pathogen is *Escherichia coli*.¹ *E. coli* endocarditis occurs most frequently in immunocompromised elderly women, especially those with diabetes mellitus. Urinary tract infection is the most common initial event. Approximately 0.51% of IE cases are caused by *E. coli*, with a mortality rate of 21%.²

Therapy for *E. coli* endocarditis is controversial. Previous literatures suggested that early valve replacement should be considered for patients with *E. coli* endocarditis to reduce the mortality rate.³ Indications for surgery included valvular regurgitation, heart failure, embolization, myocardial abscess, or persistent bacteremia.² However, antimicrobial agents used alone have been successful in treating some patients with *E. coli* endocarditis according to recent studies.⁴

For medical therapy, Moreillon⁶ summarized the antibiotic suggestion for HACEK (Haemophilus species, Actinobacillus, Cardiobacterium, Eikenella and Kingella species) IE as 4 weeks of ceftriaxone or ampicillin plus gentamicin for 4 weeks. The International Collaboration on

Endocarditis Prospective Cohort Study (ICE-PCS) review reported that the median planned duration of antibiotics at hospital discharge from the first effective dose was 42 days.² The European Society of Cardiology guidelines recommended treatment with early surgery plus long-term (≥ 6 weeks) therapy with bactericidal combinations of β -lactams and aminoglycosides,⁵ sometimes with additional quinolones or cotrimoxazole. Medical treatment of *E. coli* endocarditis in the last 5 years has provided good survival after 6 weeks of antibiotics therapy and/or surgical intervention.

Herein, we report a case of 46-year-old woman with bicuspid aortic valves and severe aortic regurgitation, who initially presented with acute onset of dyspnea for 1 day. Urinary analysis revealed pyuria. Chest X-ray showed acute pulmonary edema. Empiric antibiotic therapy with ceftazidime was prescribed for 3 days; it was then changed to piperacillin-tazobactam plus gentamicin. Four sets of blood culture yielded *E. coli*, however, urine culture showed no bacteria growth and sputum culture revealed mixed flora. An ultrasound and computerized tomography of the abdomen did not reveal any infectious focus. A transesophageal echocardiogram revealed bicuspid aortic valves with two vegetations over the aortic valve (0.9 cm \times 0.5 cm, 0.6 cm \times 0.2 cm; Figure 1) and one vegetation (0.3 cm \times 0.3 cm) over the anterior leaflet of the mitral valve.

Surgical intervention was advised, but the patient hesitated because of the high mortality related to severe

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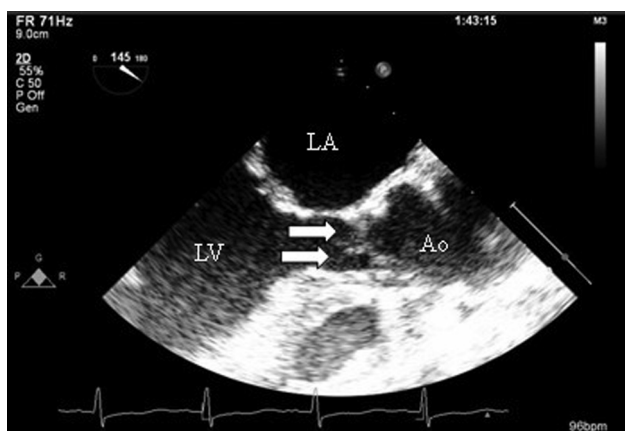


Figure 1 Transesophageal echocardiogram showing two vegetations (arrows) over the aortic valves (0.9 cm \times 0.5 cm, 0.6 cm \times 0.2 cm, respectively). Ao = aorta; LA = left atrium; LV = left ventricle.

pulmonary hypertension. One week later, we switched antibiotic therapy from piperacillin-tazobactam to ceftazidime (for 21 days) and kept gentamicin for 14 days. A follow-up blood culture revealed no growth after 4 weeks of antibiotic treatment. She remained well at the 8-month follow-up visit after discharge.

We demonstrated that this patient with *E. coli* endocarditis recovered well with standard 4-week antibiotic therapy. Most importantly, clinicians should consider the possibility that patients with continuous *E. coli* bacteremia

may suffer from endocarditis rather than a more common process such as urosepsis. Otherwise, diagnosis could be missed, especially in patients with sustained fever, new-onset heart murmur, and predisposing factors such as being an elderly female, having diabetes mellitus, an immunocompromised status, and previous valve disease. It is recommended that early echocardiography should be performed on selected patients with *E. coli* bacteremia to identify those with endocarditis.

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